Bachelor's Thesis (UAS)

Degree Program

Specialization

2011

Chen Tinglan

PHP designed web shop

– CakePHP and MYSQL online mini webshop

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BACHELOR'S THESIS | ABSTRACT

TURKU UNIVERSITY OF APPLIED SCIENCES

Degree Programme | Specialization Information Technology

Date 12.08.2011 | Number of pages 45

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PHP designed web shop

The purpose of this bachelor's thesis is to design a web shop online system for the small companies or organizations, to present simple and non-technical skills for an administrator to use and to create product information including some pictures and text in order that they can be easily managed.

The Apache server is used to run PHP Scripts, and the MySQL server is used for Database. The administrator can quite easily control a web shop and manage all the information.

The system can be run well in the server company, and the administrator can build their own management background system too. The Manager can put as many products in the web shop as possible, change the prices and pictures anytime they want, give the products discount areas for business selling. It is convenient for customers to easily shop online and choose different delivery methods. They can also learn of information and news concerning the company, and give their opinions about the company and each of its products.

Finally, the dynamic web helps the company increase its clientele and the can become members to use this website to buy products online, and the manager can use member database to connect with customers and show the news and discount products in the webshop in time, which helps increase the potential clientele and make profit for the company. The dynamic webshop is necessary to help the company to develop. In conclusion, from this project we learn how to analyze the webshop system and solve the problems that are.

KEYWORDS:

PHP, CakePHP, MySQL, Apache, Web shop, Database, Web shop Management system

PHP design web shop

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1. Introduction

Suppose that a company wants to have more customers in Finland in particular and Europe in general, but it does not have enough money to open various shops with a large workforce in different countries. The best way is to open a webshop so that the customers can buy online from different places. The company decides to use the PHP and MySQL to make the online system.

The webshop or online store is a combination of different components such as graphics, scripts, text files, images, and short video audio files as well. Thus, it is easy for an administrator to manage the content system, and product information. Besides that it is designed to be flexible for the customers, with various programming options for website design, such as PHP and MySQL to be used in a harmony for a small size website.

There is a large variety of programming languages that can be used to design a website, but here PHP and MYSQL are used as they are together a good team for small size website designs.

PHP is a server side scripting language used on the Internet to create dynamic web pages. It is built by web developers and a huge enthusiastic PHP community. It is often coupled with MySQL, a relational database server that can store the information as required by PHP programming. They are together a package which can handle quite a large gamut of websites, from the simplest to the most complex and dynamic business ones, thus making them a popular choice for programmers worldwide today.

CakePHP is an open source web application framework written by PHP. It is a structure of libraries, classes and infrastructure for programmers creating web applications on a framework. The framework can help the programmer and system management to control the website easily.

The aim of ths thesis is to design an online webshop system for small companies or organizations. Even in case the adminitrator and system manager may not know the web programming language, they can still easily create files, edit products and modify all contents from the websites, put the pictures, text and videos on the webshop.

2.The programming environment

2.1 PHP.

PHP is a computer scripting language designed for producing dynamic web pages, mainly and widely used in server-side scripting as the language especially suitable for web development and can be embedded into HTML. It can also be used for command-line scripting and client-side GUI applications, and deployed on most web servers and operating systems and platforms free of charge. It provides the complete source code for users to build, customize, and extend for their own use as well.[1]

PHP can be embedded but generally runs on a web server, which needs to be configured to process PHP code and create web page content from it.

When running the PHP parser with a web server and web Browser, the PHP model can be compared to other server-side scripting languages such as Microsoft's ASP and JavaServer pages; they all provide dynamic content to the client from web server. The clients can never even see the PHP scripts. PHP is widely used as a cross-platform scripting language to create a dynamic web development website.

The PHP architecture is popular in the web industry, deploying cheaper, reliable, scalable, secure web applications. PHP can be used with a large number of relational database management systems, runs on all of the most popular web servers and is available for many different operation systems. PHP has a wide installation base across the internet.

The main implementation is produced by the PHP Group and released under the PHP Licence. In this project the version PHP 5.2.0 was used, it was released on 8 November 2007. It is considered free software by the Free Software Foundation.

2.2 Database Management System Environment.

2.2.1 Microsoft Access

Access is a database management system from Microsoft, it is a software-development tool. The advantages of Access are:

Stored in a single way, an Access Manager object can have tables, queries, forms, and modules. All the objects are stored in the suffix (. Mdb) database file, user-friendly to operation and management. Access is an object-oriented development tool, and the use of database management functions is encapsulated in various types of objects. It is a visual tool that is convenient to use.

Access can create dynamic database reports and forms because it supports Open Data Base Connectivity (a standard software interface for accessing *database management systems*) can be embedded in a data tables, sound, Excel tables, Word documents. Access procedures can also be applied to the network, and with the network to link the dynamic data.

2.2.2 MySQL and its characteristics

MySQL stands for "My Structured Query Language". The program runs as a server providing multi-user access to a number of different clients. MySQL is a freely available open source Relational Database Management System (RDBMS), a database engine that uses Structure Query Language for adding, accessing and processing data in a database. MySQL can provide users with tools to manage the creating, modifying, combining and deleting data records and tables in a relational database. It also enables users to export data from a relational database into different format files, for example, text files. MySQL can be installed on virtually all platforms, including Linux, Unix, and Windows systems. It is fully multi-threaded using kernel threads, and provides application program interfaces (APIs) for many programming languages.

MySQL is popular in web applications and acts as the database component of the WAMP platforms (Windows-Apache-MySQL-PHP). It is popular for being used with web applications of PHP which are often combined with MySQL. PHP

and MySQL are essential components for running popular content management systems.

In addition to the above mentioned tools developed in MySQL, there are several other commercial tools available. Php MyAdmin is a free popular software web-based administration interface implemented in PHP.

MySQL has a common code base which includes the following features: First there is a broad subset of ANSI SQL 99. This has cross-platform support and stored procedures. The new MySQL supports even Triggers and Cursor functions that can save a great amount of programming work and make the system faster. Most of all, they simplify the program structure and improve the data security.

Updatable views can soon be seen in the upgrading of the program. MySQL also supports SSL (Secure Sockets Layer). Functions, like Query caching, automatic support for multiple masters, and embedded database to library are also implemented.

2.23 Oracle

The Oracle Database is a relational database management system produced by Oracle Corporation. Its offers the most flexible and cost effective way to manage information and applications. Enterprise grid computing creates large pools of industry standards, storage and servers. And each new system can be rapidly provisioned from the pool of components. There is no need for peak workloads, because capacity can be easily added or reallocated from the resource pools as needed. [2]

Table1. Comparison between access,MySQL and Oracle.

Access	**MySQL**	**Oracle**
Microsoft	Oracle Corporation	Oracle Corporation
Proprietary Software licence	Available under the terms of the GNU General Public Licence, as well as under a variety of licences	Proprietary Software licence
Speed is low while transfer data is large	MySQL is fast when concurrent access levels are low, and when there are many more reads than writes	Speed is the one of the fastest in the many databases
2GB maximum file size on mdb file	Unlimited	Unlimited
Max Table Size is 2GB	MySAM storage limits: 256 TB; Innodb storage limits:64 TB	Max Table Size is 4GB
Static system	Static system	Static + Dynamic (through ANYDATA)

2.3 CakePHP framework

CakePHP is an open source web application framework written in PHP. It is a structure of libraries, classes and run-time infrastructure for programmers creating web applications on a framework. CakePHP enables the user to work in a structured and rapid change code without loss of flexibility.

CakePHP has several features that make it a great choice as a framework for developing applications faster without so many errors. Some issues to mention are:

CakePHP is an active and friendly community which provides flexible licensing that supports compatibility with PHP4 and PHP5. Integrated CRUD (Create, Read, Update and Delete) for database interaction and simplified queries is supported and Model View Controller (MVC) architecture. On the other hand, it is a request dispatcher which provides good looking, custom URLs, built-in validation to system, which also can view Helpers for AJAX, JavaScript, HTML Forms and more. Furthermore it supports Security, Session, and Request Handling Components.

2.4 Why were PHP and MYSQL used?

The AMP (Apache/MySQL/PHP) refers to a solution using free and open-source software normally used to run dynamic websites or servers.

Apache is the web server; MySQL is the database management system or simply the database server, and PHP is the programming language of this project. The combination of these technologies establishes a software distribution package. Much more convenience can be developed from the use of CakePHP.

3. Database structure

Database structures provide a means to manage huge amounts of data efficiently, and it is a particular way of storing and organizing data in a computer. The base database structure for the yoyoshop is illustrated in Figure 1.

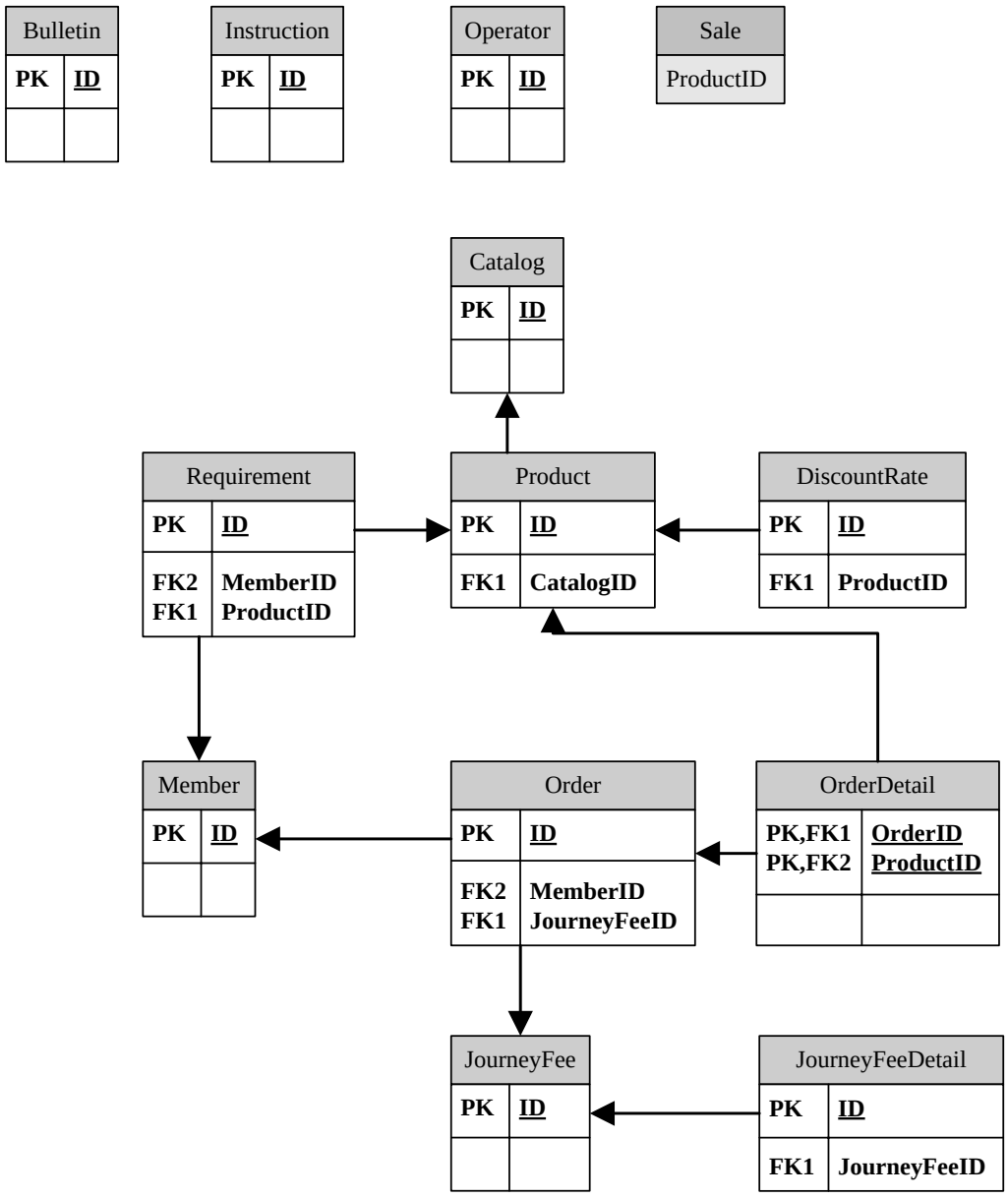

Figure 1. Entity- relationshio diagram [3]

There are many records in the main data table, for example, the clients build new member information, they should register email, password, sex, age, phone number, location, city, post number. They all have their own table in the system. The arrow headed lines show where the information should go, The products table should include *productID, discountRate, productRequirement,* and so on.

3.1 Database table

The full definitions of the database tables are summarized below in tables.

Table 2. Example of Bulletins table.

Field	**Type**	**Null**	**Key**	**Default**	**Extra**
id	int(11)	no	PRI	Null	Auto increment
title_eng	varchar(255)	no			
title_fin	varchar(255)	yes		Null	
title_swe	varchar(255)	yes		Null	
body_eng	text	no			
body_fin	Text	yes		Null	
body_swe	text	yes		Null	
created	datetime	yes		Null	

The Bulletins table is used for storing the news title and news content. *Column title_eng* is to store the title of the new menu, *body_eng* is to store the content of the news, *created* is the datetime of the write the news. *Column id* is the auto increment primary(PRI) key in this table. The database design for three differents language English(*eng*), Finnish(*fin*) and Swedish(*swe*).

About KEY.

The Key field indicates whether the column is indexed:

If Key is empty, the column is either not indexed or is indexed only as a secondary column in a multiple-column, non-unique index.

If Key is PRI, the column is a PRIMARY KEY or is one of the columns in a multiple-column PRIMARY KEY.

If Key is UNI, the column is the first column of a unique-valued index that cannot contain NULL values.

If Key is MUL, multiple occurrences of a given value are allowed within the column.

The column is the first one of a non-unique index or a unique-valued index that can contain NULL values.

If more than one of the Key values applies to a given column of a table, Key displays the one with the highest priority, in the order PRI, UNI, MUL.

The rest of the Tables can be found in the Appendix.

3.2 Database Privilege

There are two different user right levels in the Linux system. Both an ordinary user and a privileged one have the rights to use commands on MySQL to access the database system in Linux, but only a privileged user can access a specific database. To switch the ordinary user rights to privileged user rights, the password for this level of access rights needs to be given in the prompt. The administrator has enough authority to manage menu and content, add, edit, and delete images and users.

The database in MySQL is accessed by using MySQL commands. The last command prints the results of the column names in the table, which allows the user to view how the table is constructed.

4. Using the CakePHP

4.1 CakePHP structure

There are three catalogs to handle when opening the CakePHP software: App, Cake, and Vendors. The App is the place to store the programming files. The catalogs App and Cake are separate because there can be many App shares on one Cake-class. It also makes much easier to update the CakePHP: we only need to download the new version of software and cover the original class, while there is no need to worry about the cover programming file.

The Vend can be used to save third party classes. One basic important is that the vendor can be used to transfer the data from vendor class library quite conveniently.

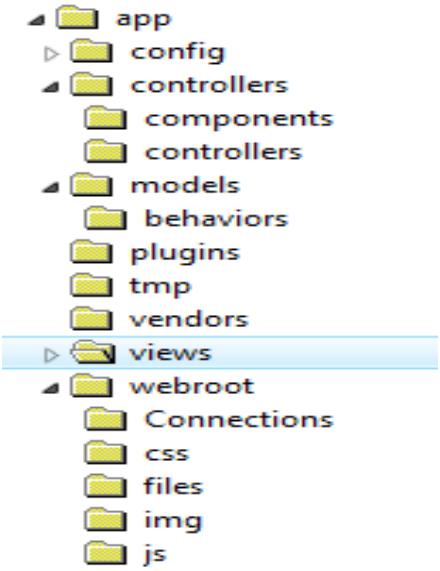

Figure 2. Catalog structure

Config file is the configuration file that includes the database and the ACL (Access Control List). The file of tmp is the place to store the cache and log

information. MVC (Models, Views and Controller) is the most important file in the App. It saves the code for the whole management system..

4.2 Setting up CakePHP

Developing environment settings are required to set up the cakePHP,
They can all be put in the cake catalogs in the DocumentRoot as follows:

/wwwroot
  /cake
    /app
    /cake
    /vendors
    .htaccess
    index.php

URL(open mod_rewrite)：

www.example.com/cake/controllerName/actionName/param1/param2

http://www.yoyoshop.fi/admin/delivery_modes/index

It look like the *controllerName* is *admin.* And *actionName* is *delivery_modes.*
It is easy to see which code in the file should be changed, and shows the programmer the route for different files.

Production environment settings are used for the production which should have a right to change the Web Server DocumentRoot.
The production environment setting structure should be set to

../path_to_cake_install
  /app
    /config
    /controllers
    /models
    /plugins
    /tmp

/vendors
/views
/webroot that is your new DocumentRoot
.htaccess
index.php
/cake
/vendors
.htaccess
index.php

5.0 Using MVC (Models,Views,Controls)

5.1 Models

MVC(Models,Views,Controls) separate domain logic from the presentation, isolating the application logic. [4]

A model is generally an access point to the database, and more specifically, to a certain table in the database. By default, each model uses the table the name of which is the plural of its own. A 'User' model uses the 'users' table. A model can also contain data validation rules, association information, and methods specific to the table it uses.

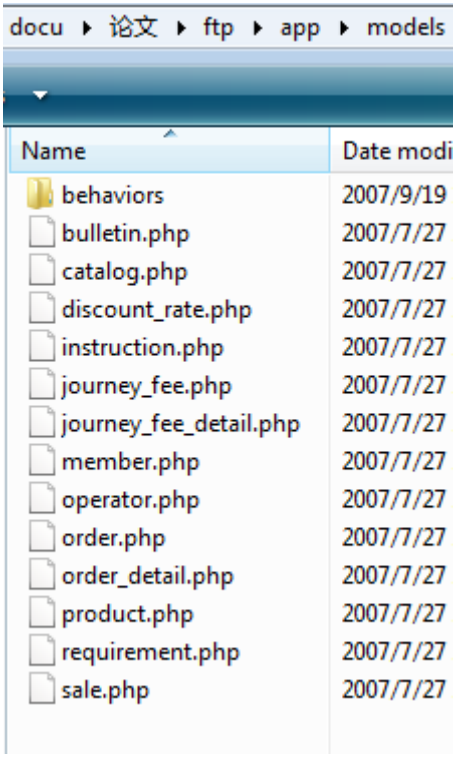

Figure 3. List of model names

From a PHP point of view, the models are classes extending the AppModel class. The AppModel class is originally definedin cake, but it is possible to create an own and put it in app_model.php. This should contain methods that are shared between two or more models.

Custom SQL calls can be made using the model's query () and execute () methods. The difference between the two is that the query () is used to make custom SQL queries the results of which are returned, and execute () is used to make custom SQL commands which require no return value.

CakePHP's scaffolding expects associations to be in the same order as columns. So if there is have an article that belongs to three other models such as Author, Editor, and Publisher, its would need three keys: *author_id*, *editor_id*, and *publisher_id*. Scaffolding would expect associations in the same order as the keys in the table, e.g, first Author, second Editor, and last Publisher.

5.2 Controls

A controller is used to manage the logic for a certain section of application. Most commonly, controllers are used to manage the logic for a single model. For example, when building a site that manages a video collection, that might have a *VideosController* and a *RentalsController* managing the videos and rentals, respectively. In Cake, controller names are always plural.

The application's controllers are classes that extend the Cake AppController class, which in turn extends a core Controller class. Controllers can include any number of actions: functions are used in web application to display views.

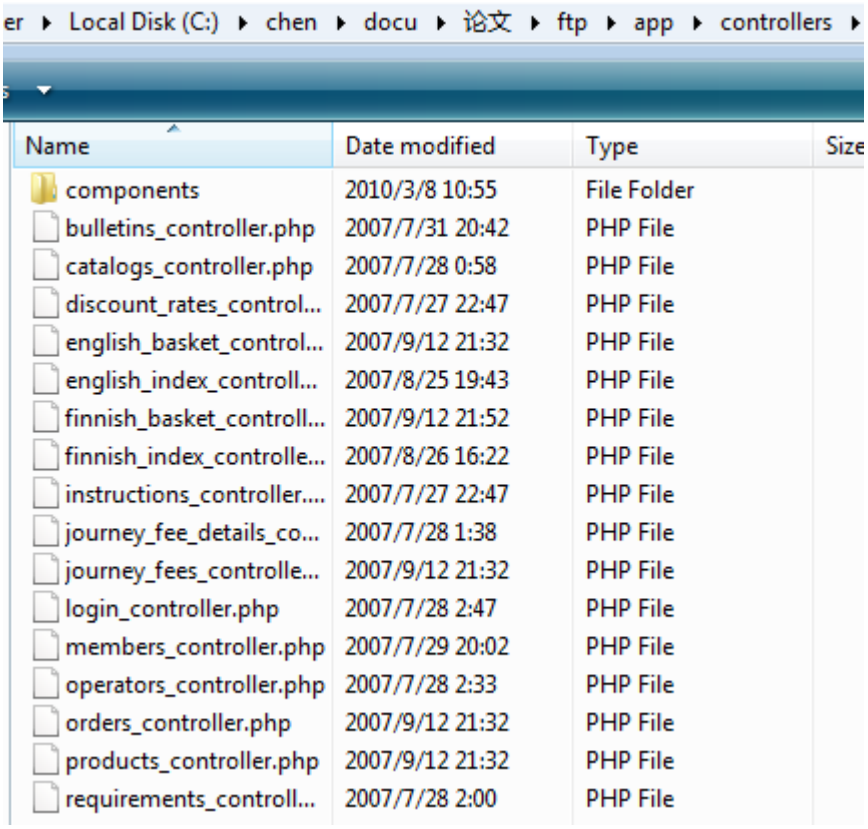

Figure 4. Lists of controller names

We can create Production Information Management in the controller files by adding productions. Adding a production includes the name of production, sort, price, discounting price, golden membership price, standard, describe，pictures and stock NO, at least ordering NO, discount and new product, weight of product, the number in each package, and delivery box weight.

The following example in Fig. 5 describes the function.

```
function edit($id=null) {
    // generate catalog list
    $this->set('catalogs',
        $this->Catalog->generateList(null, null, null, '{n}.Catalog.id', '{n}.Catalog.name_eng'));
    if (empty($this->data)) {
        // if no data transported, show content.
        $this->Product->id = $id;
        $this->data = $this->Product->read();
    } else {
        if (!empty($this->params['form']['image']['tmp_name'])) {
            // check if the product image is modified.
            $this->data['Product']['image'] =
            file_get_contents($this->params['form']['image']['tmp_name']);
            $this->data['Product']['image_type'] = $this->params['form']['image']['type'];
        }
        if ($this->Product->save($this->data['Product'])) {
            $this->flash('Your Product has been updated.', '/products/index');
        }
    }
}
```

Figure 5. A cakePHP function which edits an existing product

Delete production, deletes all the order about this production when deleting the one production, and at the same time it remind the administration of the irreparability of this function.

Setting new production and setting discount, sets the production in case of new production or discount-making.

Delivery fees setting: This includes seven country levels and rates per kg.

The method to calculate the final cost are price = whether discount? If discount price (is it member, ‘yes’ then normal price) * discounting session. Each production final cost = (over or equal each package number (total number/each package number)* each package weight + total number * weight)* delivery fee+ price of number.

The total final cost is approximate to the production cost.

Id v	Name - English	Price	Catalog	Code	Store	Created	Actions
3	Plasma ball 10cm	13.9	Plasma ball	YOA-004	93	2008-07-03 18:24:05	View Edit Delete Comments
5	Smaller minifridge	54.9	Mini fridge	YOGT-06	48	2008-07-09 15:48:10	View Edit Delete Comments
6	Football mini fridge	79	Mini fridge	YOGT-04	45	2008-07-09	View Edit Delete Comments

Figure 6. Products list table.

Membership management for member information browsing: shows all the member lists, and a click on each of them can help see more details.

Setting/cancel gold-membership, sets/cancels which member can attain gold-membership.

Delete member, deletes all the orders of this member. When deleting this member information, at the same time the administrator receives an irreparability reminder.

Member discounting level setting: each level fixes how much discount is allocated at each level.

For example, if the user logs in the website and forgets the password, the system needs to show the user the info and what the next step is. And regarding the different user levels, those administrators will more powerful rights can be changed and deleted from this class.

```
if (empty($this->data)) {
        $this->render();
} else {
        if (isset($this->data['User']['email'])) {
                $email = $this->data['User']['email'];
                $user = $this->User->find(array('email'=>$email), array('password'));
                if ($user == false) {
                        $this->Session->setFlash('Invalid email address.');
                } else {
                        $password = $user['User']['password'];
                        if (!@mail($email, L('Forgot password'), L('Your password: ').$password)) {
                                $this->Session->setFlash(L('Error when sending the password, Please contact
                        } else {
                                $this->Session->setFlash(L('Password has been sent to ').$email);
                        }
                        $this->redirect('/users/login');
                }
        }
}
```

Figure 7. Function about members who have forgotten their password

Order Management for order browsing: orders include the order number, member number, order time, estate, delivery address, connection phone. An order browse can show the details of this order; the order includes the product quantity, numbers, and details.

Setting state displays payment, non-payment, deliveries already despatch, finish time for this order. A member who places an order can automatically change to non-payment, and a manager can check the company's accounting, when the company receives the remittance, then it can change to payment state; and when the manager delivers the products, it can change to already done deliveries; and when the company receives the receipt then change this order to finish.

Delete: When a non-payment order exceeds the time limit, then it will be deleted. For example, if the member has still not paid this order after three days, this order is deleted and at the same its number is put back to the stocks.

Demand management includes browse demand, delete demand, and delete all the demand. If a member buys a quantity over the stock quantity number, the manager is reminded of this order so that he can contact the client.

Id v	User name	Status	Address	Phone	Total	Tax	Freight	Created	Actions
27	jansen0728@gmail.com	Send		adafs	23	5.06	12	2008-06-07	Delete Details Process

Figure 8. Order details

5.3 Views

A view is a page template, usually named after an action. For example, the view for PostsController: add () would be found at /app/views/posts/add.thtml. Cake views are quite simply PHP files, so they can use any PHP code inside them. Although most of view files will contain HTML, a view could be any perspective on a certain set of data, and image, and so on.

The data from the same model can be seen in the template view file. This data is passed as an array called $data. Any data that is handed to the view using set () in the controller is also now available in the view.

The HTML helper is available in every view by default, and is the most commonly used helper in views. It is very helpful in creating forms, including scripts and media.

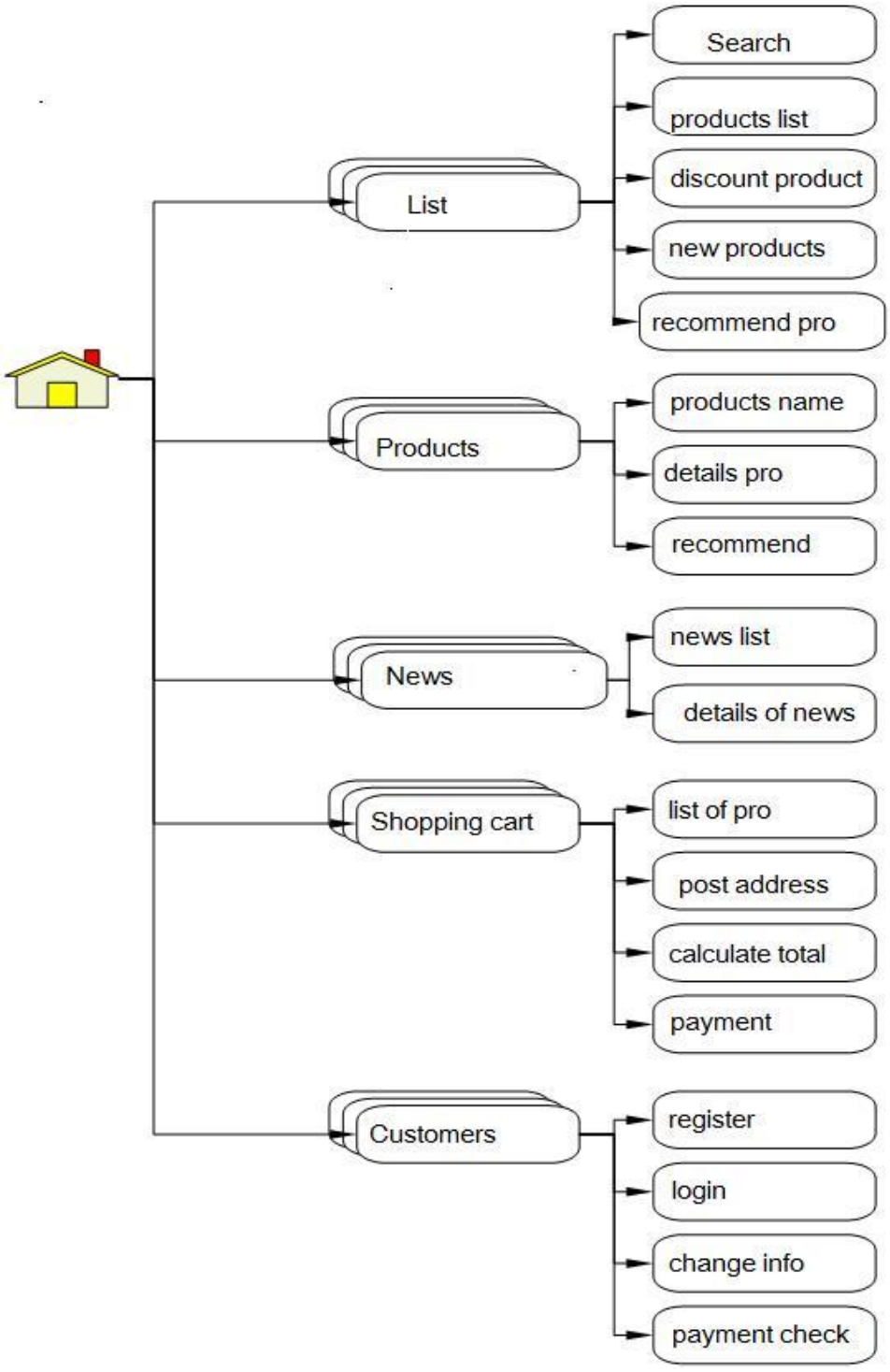

Figure 9. The web shop construction from.

Shopware modules for the webshop.

A model is an entity using the class from models file, a view is an interface using the views file, and a controller is an operation process using controllers'

files. When the Customer uses a browser view operation, Cake can automatically send the requirement to Controller, and the latter decides and sends the suitable View to user.

For example

1. The customer wants to add a product from a browser
2. First, there is a requirement to send information by using Add
3. Then Add will send the customer's data to the product Model
4. All the data are kept in the database by using Save.
5. A new product Id is send or sent back to Controller
6. The Controller sends the ID of parameter to a View using ADD.
7. At last the View is sent back to the customer.

View the Front ground function

Figure 10. Front page of project webshop

Page Distribution

Page ：first page， production page， member information page.

Categories：Left side all production categories list.

```
function search($keyword=NULL) {
    $criteria=NULL;
    if (isset($this->params['form']['keyword'])) {
        // convert bad character
        if (get_magic_quotes_gpc()) {
            $keyword = $this->params['form']['keyword'];
        } else {
            $keyword = addslashes($this->params['form']['keyword']);
        }
    }
    if (!empty($keyword)) {
        $criteria="Product.name_eng like '%".$keyword."%'";
    }
    // use 'url' property to implement pagination
    list($order,$limit,$page) = $this->Pagination->init(
        $criteria, NULL, array('modelClass'=>'Product',
        'url'=>'/english_index/search/'.urlencode($keyword)));
    $this->set('sub_title', 'Search: '.$keyword);
    $this->set('records', $this->Product->findAll($criteria, NULL, $order, $limit, $page));
    $this->render('products');
}
```

Figure 11. Search engine: hazy searches a product name.

Production list shows each category of products. If there are no categories then it shows all the products, or shows more product information in class and under each name. If the stock level is 0, then it shows OUT OF STOCK.

Product details opens another page to show the details of the product and zoom in the picture.

New product shows similar new products of the same category, which marks products for new production in this area.

Discounted product: shows which products are marked as discount products in the category.

Member Functions

1. Change member information.
2. Logout.
3. History record shows a customer's purchase records and a customer can delete their own unpaid orders. (Using the delete order system).
4. Cart contents shows all the selected products, the products in cart. It is possible when a customer wants to buy some products at that time, or sometimes when a customer place an order, the product can be out of stock. For instance, there are 3 customers who buy one product at the same time.)
5. Delete production cleans the cart. It deletes the product that haa been selected.
6. Choose product, selects the product, puts in the product number. If the clients want to buy quantity exceeding the stock quantity, then an "out of stock" message is displayed, and suggesting to reminding the manager followed by the demand record. If the quantity is below the stock quantity, then system checks if is it over the minimum number, it replies " yes " or else it replies "no ", if 'yes' is selected then tells the customers how much they can buy, if 'no' is selected the remaining quantity is put on the cart.
7. Production price: if it is a discounted product, then the system uses the discounted price, if user is a gold-member then the system uses the gold-member price and other users get the normal price and times.
8. Make an order uses the member contact information, runs the order (and subtracts the quantity from the stock quantity) and then puts the final quantity in the order record, and runs.

6. Discussion and experience while making the webshop

6.1 Shopping System flow chart

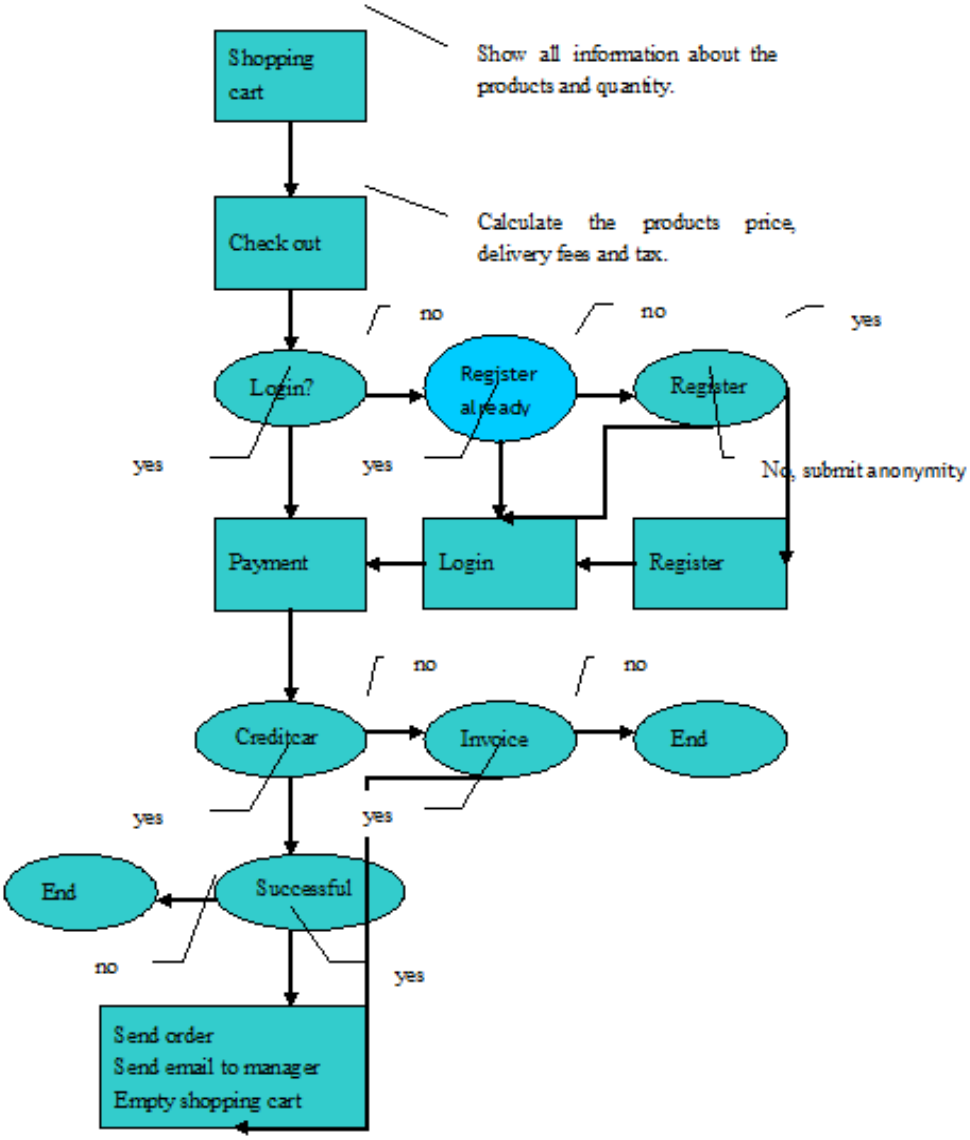

Figure 12. Flowchart of payment logicality form.

When the clients open the web shop, they can choose the interesting products they want to buy, and the page shows the clients how to register. At the same time, it calculates the price for the product, the delivery fee, and how much the

total cost is, including price and VAT. The customer must confirm the payment and choose the payment method.

The functional requirements for this web shop design

1. This example shows all the products on a list and puts the product information in session.

```
// put a product into baseket
function add() {
    if (!isset($this->params['form']['product']) ||
        !isset($this->params['form']['count']) ||
        intval($this->params['form']['count']) < 1) {
        return;
    }
    $id = intval($this->params['form']['product']);
    $count = intval($this->params['form']['count']);
    $products = $this->Session->read('products');
    if (isset($products[$id])) {
        // if selected product has been in the basket, just add the count
        $count += intval($products[$id]['count']);
    }
    $product_info = $this->Product->getProductWithDiscountRate($id, $count);
    if (empty($product_info)) {
        return;
    }
    if (intval($product_info['stock']) < $count) {
        $this->set('error', 'Not enough in stock');
        return;
    }
    $products[$id] = $product_info;
    $this->Session->write('products', $products);
}
```

Figure 13, How cakePHP works.

2. The customer checks out after clicking the entry of the country selection page.

3. After selecting the country, system calculates the whole fees, including tax and delivery fees and then puts the order in session basket so the order has the right amount now.

4. System puts other information and submits after customer acknowledgement.

5. System adds customer information to the session with order so the order includes customer address, phone number, and so on.
6. System checks customer whether he logs in or not.
7. If the customer logs in, it moves the process to the payment page.
8. If the customer does not log in, system will move to the register page.
9. If customer choice submits anonymity, it moves to the payment page and now the order information includes the *member_id.*
10. If the choice of the customers is credit card payment but not cash payment, then it changes the bank payment in the system page, and will automatically send an email to the customer when the payment is successful; it also changes to saveOrder.
11. If the customers prefer invoice, system sends an email and moves to the saveOrder, and notice to them that invoice only can be supported in Finland.
12. The model of saveOrder saves the session data in the database. If the products in stock are fewer than the customer's order number, then the system changes the order to a special order and empty session.

6.2 Multi-language

Most websites should have a multi-language system. The system process is like this:

Example: How to plus a finnish language in system, copy all the files below:
app\views\layout\english_layout.thtml
app\views\english_index（copy all files）*
app\views\english_basket（copy all files）*
app\controllers\english_index_controller.php
app\controllers\english_basket_controller.php

And then we put all files and class names to change from English to Finnish; taking care not to confuse English with Finnish characters when changing all new files (from English to Finnish). We also change the extension *_eng* to *_fi*.

Here is how to add country flag in the web,

We change the file a*pp\wwwroot\img\flag.png* to add a country flag file and present the flag of each country.

We added a new map from *the *_index.thtml* in *app\views\layout*, so that we can make sure the database has the owner language version.

We can change the program file from D:\Program Files\Apache Software

Foundation\Apache2.2\htdocs\cake\app\views\finnish_index\login.thtml

（<?php echo $javascript->link('utility.js');
?><?php echo $html->css('login'); ?>） →

<?php echo $javascript->link('utility.js');
?><?php echo $html->css('finnish_login'); ?>

And also need change the program file, D:\Program Files\Apache Software *Foundation\Apache2.2\htdocs\cake\app\views\finnish_index\profilethtml*

（<?php echo $javascript->link('utility.js');
?><?php echo $html->css('login'); ?>），→→

<?php echo $javascript->link('utility.js');
?><?php echo $html->css('finnish_login'); ?>

6.3 Open an admin user.

Before uploading files to web server, we need to update two files; "app/config/database.php" and "app/webroot/Connections/localhost.php".

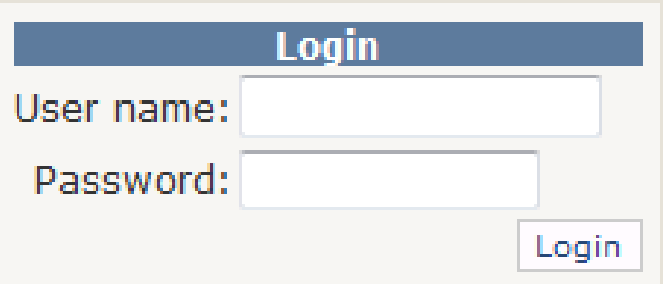

Figure 14. Admin login page.

app/config/database.php

```
class DATABASE_CONFIG
{
    var $default = array('driver' => 'mysql',
                         'connect' => 'mysql_connect',
                         'host' => 'localhost',
                        'login' => 'root',
                        'password' => 'yyx',
                        'database' => 'yoyoshop',
                         'prefix' => '');
```

'host' => 'localhost',// your mysql server address
'login' => 'user',// your mysql server login user name
'password' => 'yyx',// your mysql server login password

app/webroot/Connections/localhost.php

```
<?php
```

```
# FileName="Connection_php_mysql.htm"
# Type="MYSQL"
# HTTP="true"
$hostname_localhost = "localhost";
$database_localhost = "yoyoshop";
$username_localhost = "root";
$password_localhost = "yyx";
$localhost = mysql_pconnect($hostname_localhost, $username_localhost,
$password_localhost) or trigger_error(mysql_error(),E_USER_ERROR);
?>

$hostname_localhost = "localhost";// your mysql server address
$username_localhost = "root";// your mysql server login user name
$password_localhost = "yyx";// your mysql server login password
```

7. Security

In electronic commerce, security is a core issue subject to viruses and hacking. thus e-commerce requires network security solutions including encryption, signature scheme, distributed security management, access control, firewall, Web servers' security, and anti-virus protection.

The security of the network system is divided into data security, information security, and network security.

7.1 Data Security

Data security is the means of ensuring that data is kept safe from corruption and that access to it is suitably controlled. Thus, data security helps to ensure privacy. It also helps in protecting personal date.

The damage of the hard drive is one of threats for data security. A hard drive physical damage means loss of data loss of equipment operation, storage media failure, operating environment and human destruction. Software based security solutions encrypt the data to prevent data from being stolen. However, a program or a hacker may corrupt the data in order to make it unusable. These can be caused by affecting hard disk drives. In order to ensure data security, redundant arrays of inexpensive disks, hierarchical storage management can be used. Redundant Arrays of Inexpensive Disks is called RAID. Connecting a regular hard drive into an array makes a hard drive faster, accurate, and safe to achieve the data reading speed and security. There are eight single RAID levels, which are used to varying degrees in the real world today. Some levels, especially RAID 0, RAID 1 and RAID 5, are extremely popular, while a couple are rarely if ever seen in modern systems. The Web shop system needs to

keep working every time it handles of capital flow, so it is very important to secure the data accurately and safely. If the data is lost, the economic loss will be huge. RAID 1 is implemented as mirroring; a drive has its data duplicated on two different drives using either a hardware RAID controller or software. If either drive fails, the other continues to function as a single drive until the failed drive is replaced. Conceptually simple, RAID 1 is popular for those who require fault tolerance at low cost and do not need a top-notch reading performance..

7.2 Information Security

To prevent unregistered users from bypassing the registration interface to trade directly into the application system, the Web shop system uses Session object to register verification.

In a Web shop system the source code that will not be passed to the client browser avoids the abbreviation of the source copy by others and therefore enhances the security of the program.

In addition, the people who operate the computer are one of the greatest potential threat to information security. That is to say, the administrator cannot give out or reset passwords, change any data without verifying whom the information is for, which would let anyone easily gain access to the system

.

7.3 Network Security

Although a complicated subject network security is becoming more and more important as people spend more and more time connected.

In a Web shop system, network security starts from authenticating the user with a user name and password. For authentication, users have to use a password

with highest security, and also need to change it frequently. In the code, system should be also prepared for certain attack type such as SQL injection attack. And for instance, automatic generation of user id in the firewall is a good way to prevent attacks.

The Web shop system is a small or medium business. It has a fairly strong firewall to prevent malicious attacks, such as hacking or spamming and protect computer networks from attacks and subsequent intrusion by restricting the network traffic which can pass through.

The system must use an optional network analyser or network monitor. This type of electronic test equipment can provide the same function with the protection of firewall. The system should also be tested well for weaknesses and holes that hackers and intruders could use.

7.4 Usability

Usability is crucial in website development because it is important for users to visit pages that are user-friendly; Pages that are easy and efficient to use and have a consistent interface can help enhance usability.

Most users just simply leave the site and browse or shop elsewhere if they can not easily find what they are looking for, so information products like the best sellers module can help the customer to notice it, if the online shopping site has product pages, the customer will be sure to see them. But if the site lacks adequate information pages for product, or even if it is difficult to quickly operate the browser, then it is a serious problem, because the product information is necessary to help make people's decide to buy.

If the system has well-structured user manuals, information error message and help facilities, it can be easy for users to use. ´

Consistent interfaces.

Consistent interfaces enhance usability. Because when a person visits a new Web site, what they find in the first place are the addresses of most of the other sites; they use their experience to understand the meaning of the new content. This is called habits. People expect certain things to remain the same, such as link colours, logo, web site location, tab navigation behavior.

7.5 Backup

Backups have two distinct purposes. The primary purpose is to recover data as a reaction to data loss. Data loss is a very common experience of computer users. Backup is useful in recovering data in the event of an electronic disaster, like hardware failure or a break-in that changes or otherwise damages data. Backups copy all the important computer files kept in another location. So if the database is quite large, it has to extract the files first. That means, storage is the base of a backup system.

8.Conclusion.

The purpose of this project was to develop an online website system for a small company. PHP (CakePHP), MySQL and Apache were installed and run in company computer. During the application development, the codes were mainly written in PHP, some parts are HTML and JavaScript. A MySQL database system was used to develop the database table and the App was tested with different web browsers.

The benefits in this group software are suitable for small and middle size company website design. It is sure that the technology is developing in any time and at any seconds. Open source code, flexible licence, easy updates for the system, and flexible view caching are fearures that attract junior programmers..

CakePHP is easy to use and install, which makes it easier to create documents in content, fast for finding the route for coding files, making the administration easy for modifying, controlling the database, and information.

In the future, the webpages will also be required to be easily accessed by different people. The user could easily edit and read. Firstly, a clear plan should be done before operation; secondly, most test cases should be included in the demonstration for manipulation of web designing. Last but not least, we need to ensure that the newest software develop tool should be used and compatible with the server of the company. This is because some companies do not accept new software. There are still several features to be improved in the future.

This project was run for the business life from the 2008-2009, but the economy has a downturn since September 2009, so the company must cut the online business. Right now the economic environment is slowly growing. Hopefully one day more and more companies will join in this group.

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APPENDIX:

Running environment：

- WEB server：Apache 2.2.3
- Script：PHP 5.2.0
- Frame：CakePHP 1.1.13.4450
- Database server：MySQL 5.0.37

development tools：

- Dreamweaver 8.0.2
- Notepad++ 4.1
- Firefox 2.0.0.3
- IE 6.0

Database table attachments

Table 3. Catalog table

Field	Type	Null	Key	Default	Extra
id	Int(11)	no	PRI	Null	Auto increment
name_eng	varchar(45)	no	UNI		UNI the products calalog can not repeat
name_fin	varchar(45)	yes		Null	
name_swe	varchar(45)	yes		Null	
image	longblob	yes		Null	Products catalog image
image_type	varchar(45)	yes		Null	Type of image used to display

The catalog table saves the product catalog infomation. Column *id* is the auto increment primary(PRI) key in this table. Column *name_eng* is name of the catalog in English version, the unique(UNI) key means the column is the first column of a unique-valued index that cannot contain NULL values. Column *image* stores the image in the products catalog. Column *image_type* stores the image types of the images.

Table 4. Diccount_rates

Field	Type	Null	Key	Default	Extra
id	int(11)	no	PRI	Null	Auto increment
product_id	int(11)	no	MUL		
Low	int(11)	no			
High	int(11)	no			High is 0 this means max value
rate	decimal(10,2)	no		1	

Diccount_rates save the products discount infomation. Column *product_id* stores the different products number, so it has multiple occurrences. Column *high* is to give the value of the products, if the number equasl 0 that means the products have the maximum value

Table 5. Instructions

Field	Type	Null	Key	Default	Extra
id	int(11)	no	PRI	Null	Auto increment
title_eng	varchar(255)	no			
title_fin	varchar(255)	yes		Null	
title_swe	varchar(255)	yes		Null	
body_eng	Text	no			
body_fin	Text	yes		Null	
body_swe	text	yes		Null	
created	datetime	yes		Null	

The instructions table saves all the HELP infomation.

Table 6. Journey_fee_details

Field	Type	Null	Key	Default	Extra

id	int(11)	no	PRI	Null	Auto increment
journey_fee_id	int(11)	no	MUL		
weight	decimal(16,2)	no			
fee	decimal(16,2)	no			

Journey_fee_details save the country delivery fees info. Column *journey_fee_id* gives the number of the journey fees. Column *weight* is the products weight used to calculate freight price. Column *fee* is the total freight price of an order.

Table 7. Journey_fees

Field	**Type**	**Null**	**Key**	**Default**	**Extra**
id	int(11)	no	PRI	Null	Auto increment
name_eng	varchar(255)	no	UNI		Country name cannot repeat
name_fin	varchar(255)	yes		Null	
name_swe	varchar(255)	yes		Null	

Journey_fees was saves the country information. This is designed for posting the products out of Finland to other countries.

Table 8. Members

Field	**Type**	**Nul**	**Key**	**Default**	**Extra**
id	int(11)	NO	PRI	NULL	Auto increment
name	varchar(255)	NO	UNI		user name can not repeat
password	char(32)	NO			MD5 encrypt saved
first_name	varchar(255)	YES		NULL	

last_name	varchar(255)	YES		NULL	
company_name	varchar(255)	YES		NULL	
address	varchar(255)	YES		NULL	
vat	varchar(255)	YES		NULL	
country_name	varchar(255)	YES		NULL	
city	varchar(255)	YES		NULL	
postal_code	varchar(255)	YES		NULL	
email	varchar(255)	YES		NULL	
phone	varchar(255)	YES		NULL	
fax	varchar(255)	YES		NULL	
website	varchar(255)	YES		NULL	
gender	enum('male','female','secret')	NO		secret	
created	datetime	YES		NULL	
details	text	YES		NULL	

The members table saves customer infomation. Column *id* is the auto increment primary(PRI) key in this table, and if id is 0 that means the customer does not need to register to check the product price. Usually customers are unwilling to register, but if the product price is more interesting, they will register later. Column *name* is the customer user name and can be used in login in the system. The login in user name can not be same as every name should be different. Column *password* use MD5 encryption and is saved. Column *first_name, last_name, phone, address and details* are all the information needed about a customer. Column *created* shows the date and time when a customer opens an account in the system.

Table 9. Operators

Field	**Type**	**Null**	**Key**	**Default**	**Extra**
id	int(11)	NO	PRI	NULL	Auto increment
name	varchar(255)	NO	UNI		

password	char(32)	NO			MD5 encrypt saved

The operators table saves the background system operator information. Column *id* is the auto increment primary(PRI) key, and *id* 1is the administrator(root) who can manage or delate user accounts.

Table 10. Order_details

Field	Type	Null	Key	Default	Extra
order_id	int(11)	NO	PRI		
product_id	int(11)	NO	PRI		
count	int(11)	NO			

The *order_details* table saves order details information. Column *order_id* stores every order's number in the background system. Column *products_id* store products *id* infoamation in different order.

Table 11. Orders save

Field	Type	Null	Key	Default	Extra
id	int(11)	No	PRI	NULL	Auto increment
member_id	int(11)	NO	MUL		
status	enum('NotPay','Paid','Sent','Finished','Error')	NO		NotPay	
amount	decimal(16,2)	NO			
journey_fee_id	int(11)	NO			
address	varchar(255)	NO			
postal_code	varchar(255)	YES		NULL	
city	varchar(255)	YES		NULL	
email	varchar(255)	YES		NULL	
phone	varchar(255)	YES		NULL	

created	datetime	NO			

Orders table saves the orders info. Column *member_id* stores the registered customers. Column *status* stores the order status that includes the states not pay, paid, send, finished and error. Column *address* stores the same information with the column *members* address. Column *postal_code,city,email,phone* store the order address information.

Table 12. Products

Field	**Type**	**Null**	**Key**	**Default**	**Extra**
id	int(11)	NO	PRI	NULL	Auto increment
name_eng	varchar(255)	NO			
name_fin	varchar(255)	YES		NULL	
name_swe	varchar(255)	YES		NULL	
catalog_id	int(11)	NO	MUL		
price	decimal(10,2)	NO			
discounted_price	decimal(10,2)	YES		NULL	If bargain is 1，so default can not be null
weight	decimal(16,2)	NO			
count_per_package	int(11)	NO			
standard_eng	varchar(255)	NO			
description_eng	text	NO			
description_fin	text	YES		NULL	
description_swe	text	YES		NULL	
image	longblob	YES		NULL	Products pic
image_type	varchar(45)	YES		NULL	Type of pic
stock	int(11)	NO			
bargain	tinyint(1)	NO		0	
new	tinyint(1)	NO		0	

created	datetime	YES		NULL	

The products table stores all the infomation about products.

Table 13. Requirements

Field	Type	Null	Key	Default	Extra
id	int(11)	NO	PRI	NULL	Auto increment
member_id	int(11)	NO	MUL		
product_id	int(11)	NO	MUL		
count	int(11)	NO			
created	datetime	NO			

The requirements table stores the special orders.

Table 14. Sales

Field	Type	Null	Key	Default	Extra
product_id	int(11)	NO			
count	decimal(32,0)	YES		NULL	

The sales table calculates how many products the system sells.